



Natural Heritage & Endangered Species Program

Massachusetts Division of Fisheries & Wildlife
Route 135, Westborough, MA 01581
tel: (508) 792-7270, ext. 200; fax: (508) 792-7821
www.state.ma.us/dfwele/dfw/nhesp

Attenuated Bluet Damselfly

Enallagma daeckii

State Status: **Special Concern**

Federal Status: None

DESCRIPTION: The Attenuated Bluet is a small, semi-aquatic insect of the order Odonata, suborder Zygoptera (the damselflies), and family Coenagrionidae (pond damsels). Like most damselflies, Attenuated Bluets have large eyes on the sides of the head, short antennae, and four heavily veined wings that are held folded together over the back. The Attenuated Bluet is characterized by having an exceptionally long, slender abdomen. On average, it is the longest pond damsel in the United States. The male's thorax (winged and legged section behind the head) is mostly pale blue with thin black stripes on the "shoulders" and top. The abdomen, which is composed of ten segments, is mostly dark brown/black with some blue on the sides of the base of the abdomen and an entirely blue tip (half of segment 7 and all of segments 8-10). Females have thicker abdomens than the males, and are generally brown where the males are blue, though older females may become quite bluish.

Attenuated Bluets range from 1.5 to 1.8 inches (38 mm to 46 mm) in length.

SIMILAR SPECIES: The bluets (genus *Enallagma*) comprise a large group of damselflies, with no less than 20 species in Massachusetts. Identification of the various species can be very difficult and often requires close examination of the terminal appendages on the males (Nikula *et al.* 2003) or the mesostigmal plates (located behind the head) on the females (Westfall & May 1996). The Attenuated Bluet is most similar in appearance to the more common and widespread Slender Bluet (*E. traviatum*). The two species are most safely distinguished by the shape of the terminal appendages on the male and the mesostigmal plates of the females. Attenuated Bluets have much longer abdomens, giving them a lankier appearance than Slender Bluets. However, this feature may require direct comparison between species and there is some variation in size so it is not entirely reliable for identification.

HABITAT: Attenuated Bluets inhabit a variety of wetlands, but seem to be most numerous on highly vegetated lakes and ponds. They have also been found in swamps, shady ponds and vegetated stream backwaters. The nymphs are aquatic and live among aquatic and emergent vegetation and debris.



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LIFE-HISTORY/BEHAVIOR: Although little has been published specifically on the life history of the Attenuated Bluet, it is likely similar to other, better-studied species in the genus. All odonates have three life stages: egg, aquatic nymph, and flying adult. The nymphs are slender with three leaf-like appendages extending from the end of the body which serve as breathing gills. They have a large, hinged lower jaw which they are able to extend forward with lightning speed. This feature is used to catch prey, the nymph typically lying in wait until potential prey passes within striking range. They feed on a wide variety of aquatic life, including insects and worms. They spend most of their time clinging to submerged vegetation or other objects, moving infrequently. They transport themselves primarily by walking, but are also capable of swimming with a sinuous, snake-like motion.

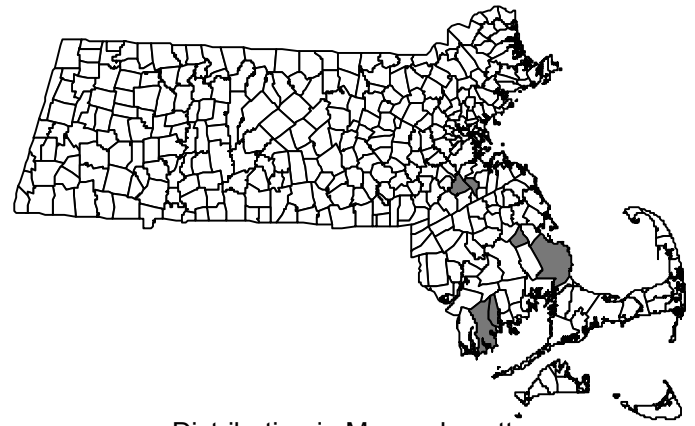
ATTENUATED BLUET FLIGHT PERIOD

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Attenuated Bluets have a one-year life cycle. The eggs are laid in late summer and probably hatch in the fall. The nymphs develop over the winter and spring, undergoing several molts. In early to mid-summer the nymphs crawl up on emergent vegetation and begin their transformation into adults. This process, known as emergence, typically takes a couple of hours, after which the newly developed adults (teners) fly weakly off to upland areas where they spend a week or two feeding and maturing. The young adults are very susceptible to predators, particularly birds, ants, and spiders; mortality is high during this stage of the life cycle. The adults feed on a wide variety of smaller insects which they typically catch in flight.

When mature, the males return to the wetlands where they spend most of their time searching for females. When they locate a female, the male attempts to grasp her behind the head with the terminal appendages at the end of his abdomen. If the female is receptive, she allows the male to grasp her, then curls the end of her abdomen up to the base of the male's abdomen where his secondary sexual organs (hamules) are located. This coupling results in the heart-shaped tandem formation characteristic of all odonates. This coupling lasts for a few minutes to an hour or more. The pair generally remains stationary during this mating but, amazingly, can fly, albeit weakly, while coupled.

Once mating is complete, the female begins laying eggs (oviposits) in emergent grasses and rushes, using the ovipositor located on the underside of her abdomen to slice into the vegetation and deposit eggs. Although the female occasionally oviposits alone, in most cases the male remains attached to the back of the females head. This form of mate-guarding is thought to prevent other males from mating with the female before she completes egg-laying. The adult's activities are almost exclusively limited to feeding and reproduction, and their life is short, probably averaging only three to four weeks for damselflies like the Attenuated Bluet.



Distribution in Massachusetts
1977 - 2002

Based on records in Natural Heritage Database

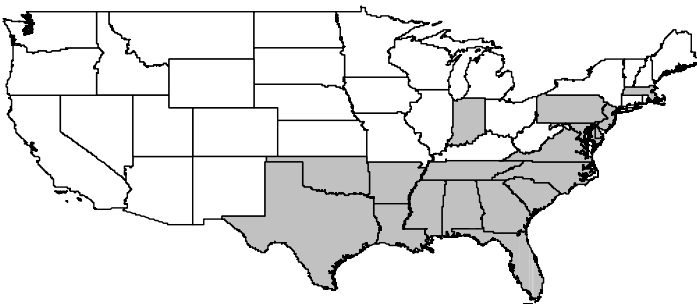
RANGE: The Attenuated Bluet ranges from Massachusetts south to Florida and west to Indiana, Oklahoma and Texas. The Attenuated Bluet reaches the edge of its range in New England, and has been recorded only from Massachusetts and Rhode Island.

POPULATION STATUS IN MASSACHUSETTS: The Attenuated Bluet is listed as a Species of Special Concern in Massachusetts. The species is known only from southeastern portions of Massachusetts, primarily from Bristol County. Most Massachusetts sites are well-vegetated lakes or ponds. The majority of records for Attenuated Bluet in Massachusetts are from the 1990s; whether this indicates a population increase and range expansion in the state or simply reflects increased observer effort is unclear.

MANAGEMENT RECOMMENDATIONS: Threats to Attenuated Bluet populations in Massachusetts are similar to those facing other odonates and, indeed, most wetland fauna. These threats include disturbance from human recreational activities, destruction of habitat for residential and other uses, contamination from herbicides, insecticides, and highway run-off, and alteration of water levels through water pumping or other activities. Management should focus on maintaining water quality, protecting wetlands and adjoining upland buffers (crucial to maturing adults), controlling road run-off, limiting the application of herbicides and insecticides, and maintaining sufficient water levels.

REFERENCES:

- Nikula, B., J. L. Loose, and M. R. Burne. 2003. A Field Guide to the Dragonflies and Damselflies of Massachusetts. Massachusetts Natural Heritage and Endangered Species Program.
- Walker, E. M. 1953. The Odonata of Canada and Alaska, Vol. 1, The Damselflies.
- Westfall, M. J., Jr., and M. May. 1996. Damselflies of North America. Scientific Publishers.



Range of Species in US